BY ORDER OF THE COMMANDER
HILL AIR FORCE BASE
(AFMC)

HILL AFB INSTRUCTION 99-101

21 MARCH 2000

Test and Evaluation

OO-ALC TEST AND EVALUATION (T&E) RISK MANAGEMENT PROCESS

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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Supersedes Hill AFB Instruction 99-101,
27 January 1998

Pages: 28
Distribution: F

This instruction implements *AFMCPD 99-1, Test and Evaluation (T&E) Risk Management* and *AFPD 91-2, Safety Programs,* and further delineates *AFI 99-101, Developmental Test and Evaluation*, and *AFMC sup 1 to AFI 91-202, The USAF Mishap Prevention Program,* by providing guidance and procedures for all T&E conducted by or for the Ogden Air Logistics Center (OO-ALC). T&E is one of the eight core processes of the Integrated Weapon System Management (IWSM) concept, and is an acquisition risk reduction tool to help program managers with decision making. This instruction applies to all OO-ALC directorate chiefs, referred to as the Single Manager (SM), responsible for aircraft, aircraft weapons, munitions, and aircraft related system ground and flight-testing. This instruction provides SMs at OO-ALC with a disciplined process to manage technical and safety risk within their test projects. Most of the work and much of the T&E risk management occurs in the planning phase of a test project. The OO-ALC Center Test Authority (CTA), currently assigned to the Science and Engineering Division of the Technology and Industrial Support Directorate (OO-ALC/TIE), and the OO-ALC Test Representative (TESTREP) will provide test planning guidance and assistance throughout the T&E process. Independent review by technical and safety experts will assure a good test plan and ultimately a successful test project.

SUMMARY OF REVISIONS

Majority of changes originated from the incorporation of requested process improvements or are the result of recent organizational changes implemented at OO-ALC. The principal revisions are: the Science and Engineering Division of the Technology and Industrial Support Directorate (OO-ALC/TIE) has been reassigned as the OO-ALC CTA (Introduction paragraph, and paragraphs 10.3.4. and 11.2.), a reference to *Hill AFB Instruction (HAFBI) 10-401, Support of Units Deployed to Hill AFB* (paragraph 1.1.), the OO-ALC/CC will approve the MOA establishing the OO-ALC TESTREP position (paragraph 2.1.), the OO-ALC CTA will co-chair Test Readiness Reviews (TRR) in conjunction with the SM (paragraphs 2.2.,

2.4. and 9.1.), the SM organization will identify test requirements (paragraph 2.4.), defined Wing Commander or Directorate Chiefs responsibilities (paragraph 2.6.), defined Group Commander responsibilities (paragraph 2.7.), defined Responsible or Participating Test Organization (RTO and PTO respectively) responsibilities (paragraph 2.8.), the Test Manager (TM) will write test reports (paragraph 2.9.), reduced the time for notifying the TESTREP of an upcoming test from 180 to 90 days (paragraph 3.1.), expanded on test project safety review requirements when the 388th Range Squadron (388RANS) has been designated RTO (paragraph 3.2.3.), referenced an additional source, *The Methods of Test Writer's Guide*, to be utilized as a guide when developing a test plan (paragraph 3.5.2.), substituted AFMC/DRI for ASC/CYM to reflect new organization responsible for AFMC lessons learned database (paragraph 6.1.2. and 11.2.), Safety Review Board (SRB) voting members sign the *OO-ALC Form 518, Test Project Safety Review*, at the conclusion of the SRB unless action items applicable to the members functional discipline were generated during the SRB (paragraph 7.2.6.7.), modified the test project safety review coordination/approval process by lowering the approval authority level for low and medium risk test projects (paragraphs 8.3. and 10.3.), the RTO and PTO will approve their respective test cards and local operating instructions (paragraph 9.2.), *OO-ALC Form 518*, has been modified to reflect the new test project safety review coordination/approval process (attachment 2).

1. APPLICABILITY:

1.1. The procedures outlined in this instruction specifically apply to all tests (both ground and flight), activities involving OO-ALC personnel, aircraft, managed weapon systems, equipment, facilities, or airspace. This includes component, subsystem, system, and software tests. T&E conducted by another service, major AF command, the Air Force Reserve, or the Air National Guard on behalf of OO-ALC are also included. All aircraft and associated munitions staging from Hill AFB are required to be identified IAW *HAFBI 10-401, Support of Units Deployed to Hill AFB.*

1.2. In addition, this instruction applies to T&E conducted for OO-ALC by a contractor using Air Force Materiel Command (AFMC) resources. Government oversight will be provided for tests conducted at contractor facilities. The SM will use the contract to ensure compliance.

1.3. Activities that are a normal part of the maintenance function, known as Industrial and Maintenance Inspections (i.e., routine functional check flights or engine runs after depot maintenance) are not governed by this instruction unless the item has been altered to such an extent that the technical and safety risk associated with its ordinary function is increased. Procedures conducted according to approved technical orders are not considered T&E under this instruction.

1.4. For any activity not specified above the application of this instruction is at the discretion of the CTA.

2. GENERAL RESPONSIBILITIES:

2.1. OO-ALC Commander (OO-ALC/CC) will:

- Approve the OO-ALC T&E risk management process.
- Designate the CTA according to *AFMCPD 99-1*.
- Approve all high risk test project safety reviews.
- Approve MOA establishing the OO-ALC TESTREP Position.

2.2. CTA will:

- •Establish, publish, and implement an OO-ALC T&E risk management process.
- •Chair OO-ALC Technical Review Boards (TRB).
- •Assist with test planning, execution, and reporting for all T&E conducted by or for the OO-ALC.
- •Coordinate on all OO-ALC test plans and test project safety reviews.
- •Co-Chair TRR.

2.3. TESTREP will:

- •Act as liaison between AF Test Centers and OO-ALC.
- •Advise SMs on all test related issues.
- •Help SM identify test requirements.
- •In conjunction with the single face to the customer (SFTC) offices, recommend a RTO to the SMs.
- •Make preliminary assessments of technical and safety risk.
- •Be a voting member on all TRB and safety review boards (SRB) if not directly involved with planning of test.
- •Maintain and coordinate local lessons learned.
- •Coordinate on all OO-ALC test plans and test project safety reviews.
- •Coordinate test project introductions with applicable AF Test Center.

2.4. SMs will:

- •Ensure compliance with all T&E applicable publications.
- •Assign a test adjunct (TA) within the SM organization.
- •Approve SM organization test plans.
- •Coordinate on SM organization test project safety reviews.
- •Co-Chair and Approve TRRs.
- •Request approval from AFMC/DO for RTO designation.
- •Request approval from AFMC/DO for use of non-Major Range and Test Facility Base (MRTFB) or contractor facilities.
- •Identify Test Requirements.

2.5. TA will:

- •Be cognizant of all T&E with the SM's organization.
- •Coordinate test activities with the CTA, TESTREP, OO-ALC/SE, and applicable TM.
- •Notify TESTREP of potential tests upon notification of new projects.

2.6. Wing Commander or Directorate Chief will:

- •Approve medium risk and coordinate on high risk test project safety reviews.

2.7. Group Commander will:

- •Coordinate on medium and high risk test project safety reviews.

2.8. RTO/PTO will:

•Assign a TM to each test project.

•Coordinate on all test plans.

•Approve low risk and coordinate on all remaining test project safety reviews.

•Approve ground and flight test events (test cards and local operating instructions).

•Approve Test Reports.

2.9. TM will:

•Follow the T&E risk management process outlined within this instruction.

•Develop test and safety plans.

•Chair test plan working groups.

•Assemble resources required to conduct the test.

•Execute test.

•Ensure testing is conducted according to the approved test project safety review.

•Write Test Reports.

2.10. OO-ALC/SE will:

•Direct the test safety review process.

•Coordinate on all test plans, test project safety reviews, and test cards or local operating instructions.

•Determine the level of safety review required.

•Chair SRBs.

•Assess safety risk level if a formal SRB was not conducted.

3. TEST PLANNING:

3.1. Identify Test Requirements. Technical planning and safety planning are an integral and interactive process (see Attachment 1). While it may be convenient to assess technical issues separately from safety issues, the TM will interweave both issues throughout the test planning process. Identifying test requirements is the first step in the test planning process. The TESTREP will help identify test requirements, which may include laboratory, ground, and flight testing. The following time tables provide adequate test plan review for OO-ALC test plans. ("T" is the planned test day.)

•T-90 or earlier: Contact TESTREP for upcoming test.

•T-90 to T-60: Review test plan and determine the need for formal TRB.

•T-60 to T-45: Conduct TRB.

•T-45 to T-30: Review Test Project Safety Review package.

•T-30: Conduct SRB.

•Not later than T-10: Test plan/test project safety review approved.

•T-7 to T-2: TRR if required.

•T-1: Test team review.

•T-0: Test.

3.2. Select RTO:

3.2.1. The RTO is the agency responsible for planning, executing, analyzing, and reporting on a test. A PTO may assist the RTO. The test squadrons at either the Air Force Flight Test Center (AFFTC) at Edwards AFB CA or the Air Armament Center (AAC) at Eglin AFB FL are typical RTOs. Other RTOs include, but are not limited to: the 514th Flight Test Squadron (514 FLTS) at Hill AFB for small tests easily accomplished on non-instrumented aircraft; the 649th Munitions Squadron (649MUNS); the 388RANS; and in rare cases, the SM's organization. The TESTREP provides a list of potential RTOs and makes a recommendation to the SM after coordinating with the appropriate SFTC office, but the SM selects the RTO unless one has been designated in a Program Management Directive. The SM will then forward a letter to AFMC/DO requesting RTO approval.

3.2.2. If an RTO from an established AF Test Center is selected, then that Center's test process will be followed. The TESTREP can assist the TA in coordinating with the particular AF Test Center as required.

3.2.3. If the 388RANS is the RTO or the PTO (been delegated the responsibility for executing the test by the RTO) then the 388th Fighter Wing (388FW) test safety review process will be followed. If the test project has aircraft departing from Hill AFB and is conducted on the UTTR then no OO-ALC involvement is required other than those requirements outlined in *HAFBI 10-401*. If the test project requires additional OO-ALC managed facilities/resources then OO-ALC personnel will participate in the 388FW test project safety review. 388th Fighter Wing Range Safety (388FW/SEY) in coordination with OO-ALC/SE will determine who from OO-ALC will participate in the test project safety review to include coordination on the final test project safety review package. Upon approval of all 388FW test projects, to include those not in support of OO-ALC, an "INFO" copy of the test project safety review package will be forwarded by 388FW/SEY to OO-ALC/SE.

3.2.4. If an OO-ALC organization is selected as the RTO, a local TM will be assigned from within the RTO's organization.

3.3. Air Force Operational Test and Evaluation Center (AFOTEC) Notification: If the project involves Developmental Test and Evaluation (DT&E) or Qualification Test and Evaluation (QT&E) (see glossary for test and evaluation definitions), the SM notifies AFOTEC. AFOTEC decides if Operational Test and Evaluation (OT&E) is required.

3.3.1. If AFOTEC determined that OT&E is required, then the SM certifies that the system is ready for OT&E when sufficient DT&E or QT&E has been completed.

3.3.2. Changes to the system may be required to correct deficiencies discovered during OT&E. Additional DT&E or QT&E may be required prior to resuming OT&E to verify the changes did not adversely affect the system.

3.4. Test Project Introduction:

3.4.1. The TESTREP will summarize the test, recommend an RTO, and provide an initial assessment of technical and safety risk levels (low, medium, or high) in a Test Project Introduction (TPI), which will be sent to the appropriate AF Test Center and SFTC office for review. This TPI review process takes place in parallel with the local review process described in this instruction. This requirement is directed by *AFMCPD 99-1*.

3.4.2. If at any time, the reviewers at the AF Test Center or SFTC office have concerns or do not agree with the preliminary risk level assessments or RTO recommendations, they will contact the TESTREP, who will work with the AF Test Center, SFTC office, and TM to resolve the concerns.

3.4.3. If there are no concerns, or the concerns are resolved, the TESTREP will receive concurrence on the TPI from the AF Test Center and SFTC office. A copy of the concurrence will be sent to the TM for inclusion in the project folder. (See Paragraph 8.1.)

3.4.4. In addition, the TPI will be sent to the Plans and Programs Division (OO-ALC/EMP) along with a completed *AF Form 813, Request for Environmental Impact Analysis,* to verify that the test will not have any adverse environmental impact. Any environmental concerns must be addressed before the test plan is submitted for final approval. This process may take several weeks to several months and should therefore be started early in the process.

3.5. Prepare Draft Test Plan:

3.5.1. The TM is responsible for developing the test plan and assembling all the resources needed to conduct the test. Assistance from the SM organization is almost always required. The TESTREP and CTA will assist as required.

3.5.2. In general, test plans should follow the guidelines of *AFFTC-TIH-93-01, Air Force Flight Test Center Test Plan Preparation Guide* (available from AFFTC) or, *The Methods of Test Writer's Guide* (available from AAC). These handbooks are meant to be used as a guide. For many of the small scale tests that occur at OO-ALC, the test plan can be tailored significantly, especially since much of the information requested in the guide may not apply. The elements of a test plan should have sufficient detail for a technically-qualified individual not associated with the project to understand the objective and be able to follow the test methodology.

3.6. Its recommended that the TM conduct a test planning working group (TPWG) during the early stages of developing the test plan. The TPWG is the forum for solving project T&E issues and is composed of representatives from all support organizations. Taskings of the TPWG include:

- •Creating test objectives from the project objectives.
- •Defining organizational relationships & responsibilities.
- •Develops test methodologies.
- •Defines specific test requirements.
- •Writes test plan or directive.
- •Develops a realistic test project schedule.
- •Develops plan for assembling test resources.

4. TECHNICAL REVIEW:

4.1. TRB not required. When the draft test plan is completed, the TESTREP will review it and make a preliminary technical risk level assessment. A memorandum including the preliminary technical risk level recommendation and a recommendation on whether a formal TRB is required will be prepared and forwarded to the CTA. The CTA will review and approve all test plans for technical adequacy and decide if a formal TRB is required. The TRB can only be waived for low technical risk tests; it is required for all medium and high technical risk tests. If the CTA does waive the TRB, the

CTA will sign the TESTREP's waiver letter and will forward the letter with the respective test plan. TRBs are explained in detail in Section 4.2. of this instruction.

4.2. TRB required:

4.2.1. Per *AFMCPD 99-1,* a TRB:

•Evaluates test requirements and objectives.

•Ensures that the overall approach relates to the requirements.

•Evaluates technical adequacy.

•Verifies that testers can meet the objectives with acceptable technical risks.

4.2.2. Schedule TRB. If the CTA determines that a formal TRB is required, the TM will schedule the TRB through the TRB Chairperson. The primary TRB chairperson is the CTA. The CTA may designate the TESTREP or another senior engineer as the TRB chairperson if desired. For test projects that are likely to contain medium or high risk events, the CTA in conjunction with the TESTREP may contact the appropriate AF Test Center of expertise to obtain a specialized TRB chairperson with applicable experience.

4.2.3. Select TRB members. The TRB chairperson will determine who are the voting members of the TRB. TRB membership should include:

•TRB chairperson.

•A safety or operations representative from the Utah Test and Training Range (UTTR) for tests using 388FW airspace, facilities, equipment, or personnel.

•System operator representative, to include flight crew for aircraft related tests.

•OO-ALC TESTREP.

•Maintenance representative (if required).

•Engineering representative.

4.2.4. If considered appropriate, additional TRB members will be designated from OO-ALC support organizations (i.e., 75 AMDS/SGPB, 75 CEG/CEF, 75 OSS/OSAM, 75 CEG/CED, OO-ALC/SES, OO-ALC/SEF, OO-ALC/SEG, or OO-ALC/SEW). TRB members should be senior in test experience in their appropriate disciplines. They will have sufficient experience in the type of test activity to be reviewed, but not have sufficient project involvement to present a personal conflict of interest. Absence of a voting member may result in cancellation or delay of the TRB.

4.2.5. The TM will notify board members of the date and place of the TRB and, no later than four working days before the TRB, provide each board member with a copy of the TRB package, notification letter, test plan, and any required reference material. The TM will also ensure applicable project personnel are available to answer questions. As a minimum the TM and TA must be in attendance. Other non-voting attendees at the TRB may include a project engineer or customer representative.

4.2.6. Conduct TRB. The TRB chairperson is responsible for conduct and control of the TRB. The TM is responsible for the presentations to the board. The board will use the following agenda:

4.2.6.1. Introduction of all personnel present (Chairperson).

4.2.6.2. Brief description of test (TM).

•Background

- OO-ALC involvement
- Who requested test

•Test objectives

•Test item description

•System maturity

•Proposed tests/methods

•Differences from previous tests

•Predicted test article characteristics

•Scope

•Data collection and analysis

•Reporting requirements

4.2.6.3. General Questions (TM).

4.2.6.4. Review of test plan (Chairperson).

4.2.6.5. Assess technical risk (Chairperson).

4.2.6.6. Review action/open items and additions (Chairperson).

4.2.7. Inadequacies in the test plan discovered by the TRB, action items generated during the TRB, and technical risk assessment will be documented by the TM in TRB minutes.

5. POST TECHNICAL REVIEW COORDINATION. Complete TRB action items. The TM must resolve all action items as determined by the CTA prior to seeking a formal safety review. TRB minutes along with any corresponding action item responses will be forwarded with the test plan during coordination.

6. SAFETY PLANNING:

6.1. Identify Test Hazards. The TM will identify hazards generated by the test. As a minimum, the TM will:

6.1.1. Contact other personnel with experience in similar testing.

6.1.2. Review the OO-ALC/SE, AFFTC/SET, and AFMC/DRI database for hazards identified/ lessons learned in other test projects of a similar nature.

6.1.3. Review the contractor system safety plans and analyses. These include system/subsystem hazard analysis and previous test results of the test item including: ground, qualification, ground vibration, laboratory, computer simulation, wind tunnel, and static tests. This review should include predicted system performance against any established applicable criteria.

6.1.4. Review *AFMCPAM 91-1, Flight Safety and Technical Considerations Guide for Flight Testing.*

6.1.5. Attempt to identify new hazards that may be unique to the operation of the new system or mission environment.

6.1.6. When non-OO-ALC assets/facilities are used, review the safety requirements for those assets/facilities.

6.2. Eliminate/Control Test Hazards. The TM will take action to eliminate the identified test hazards or control them to an acceptable level of risk. To determine the appropriate course of action, the TM will apply within his/her authority the following safety order of precedence:

6.2.1. Design out the test hazard.

6.2.2. Reduce risk through change in test design.

6.2.3. Incorporate safety devices.

6.2.4. Provide caution and warning devices.

6.2.5. Develop test procedures and provide proper training of the individuals conducting the test. (For example, increase the build-up test points required. In cases where predictive data is not available, special emphasis will be placed on adding build-up test points.)

6.2.6. Accept residual risk.

6.3. Prepare Draft Safety Paperwork. After completing the above steps in Section 6, the TM will prepare advance copies of the *OO-ALC Form 518, Test Project Safety Review,* and *OO-ALC Form 519, Test Hazard Analysis (THA)*. Attachment 2 of this instruction contains instructions for completion of these forms.

7. SAFETY REVIEW:

7.1. SRB not required: OO-ALC/SE will determine if a formal SRB is required. This determination will be based on the scope, complexity, similarity to previous tests, and anticipated risk level. OO-ALC/SE will review the test plan, *OO-ALC Form 518,* and each *OO-ALC Form 519*. If required, OO-ALC/SE will request other expert personnel (such as engineering, operations, Bioenvironmental Engineering Flight (75 AMDS/SGPB), Explosive Ordnance Disposal Division (75 CEG/CED), Fire Protection Division (75 CEG/CEF), Airfield Management (75 OSS/OSAM), System Safety Division (OO-ALC/SES), Flight Safety Division (OO-ALC/SEF), Ground Safety Division (OO-ALC/SEG), 388FW/SEY, or Weapons Safety Division (OO-ALC/SEW)) to also review these documents.

7.1.1. The review members will assess the risk of the project according to Attachment 3. If appropriate, the risk will be assessed separately for OO-ALC and non-OO-ALC assets, or for different phases of the test project. All test points expected to be medium or high risk that are to be piloted by other than a graduate of a test pilot school should be identified.

7.1.2. Action items and additions may be assigned by the review members. Open items should be closed before starting the coordination cycle. If they cannot be closed, as much detail about the item should be included in the package as possible. OO-ALC/SE will determine if sufficient detail is included to go forward.

7.2. Safety Review Board required:

7.2.1. Per *AFMCPD 99-1,* a SRB will:

•Evaluate the extent to which the probability of occurrence of known hazards has been minimized.

•Assess the residual risk level.

7.2.2. Schedule SRB. If OO-ALC/SE determines a formal SRB is required after completion of the TRB, the TM will schedule the SRB date and place through the SRB Chairperson. OO-ALC/SE may designate an alternate if desired. The SRB will be scheduled no earlier than 60 days before the anticipated start of test, yet early enough to obtain final testing approval at least 10 days before testing. The OO-ALC/SE will approve variations to this timing on a case-by case basis.

7.2.3. Select SRB members. The SRB chairperson will determine who are the voting members of the SRB. SRB membership should include:

•SRB chairman.

•A safety representative from the UTTR for tests using 388FW airspace, facilities, equipment, or personnel.

•System operator representative, to include flight crew for aircraft related tests.

•OO-ALC TESTREP.

•Maintenance representative (if required).

•Engineering representative.

7.2.4. If considered appropriate, additional SRB members will be designated from OO-ALC support organizations (i.e., 75 AMDS/SGPB, 75 CEG/CEF, 75 OSS/OSAM, 75 CEG/CED, OO-ALC/SES, OO-ALC/SEF, OO-ALC/SEG, or OO-ALC/SEW). SRB members should be senior in test experience in their appropriate disciplines. They will have sufficient experience in the type of test activity to be reviewed, but not have sufficient project involvement to present a personal conflict of interest. Absence of a voting member may result in cancellation or delay of the SRB.

7.2.5. The TM will notify board members of the date and place of the SRB. At least four working days before the SRB convenes, the TM will provide each board member with a copy of the SRB package, notification letter, *OO-ALC Form 518, OO-ALC Forms 519,* test plan, and any required reference material. The TM will ensure that applicable project personnel are available to answer questions. As a minimum, the TM must be in attendance. Other non-voting attendees at the SRB may include the project engineer and customer representative.

7.2.6. Conduct SRB. The SRB chairperson is responsible for the conduct and control of the SRB. The TM is responsible for the presentations to the board. The board will use the following agenda:

7.2.6.1. Introduction of all personnel present. (Chairperson).

7.2.6.2. Brief description of test. (TM).

•Background

•OO-ALC involvement

•Who requested test

•Test objectives

•Test item description

•System maturity

•Proposed tests/methods

•Differences from previous tests

•Scope

•Mishap responsibilities

•Investigating/reporting

•Mishap accountability

7.2.6.3. General Questions. (TM).

7.2.6.4. Review of test plan, *OO-ALC Form 518* and each *OO-ALC Form 519*. (Chairperson).

7.2.6.5. The SRB voting members will review the test and assess the safety risk according to Attachment 3. The risk level will be adjusted based upon predicted results or the absence of predictive data. If appropriate, the risk is assessed separately for OO-ALC and non-OO-ALC assets or for different phases of the test project.

7.2.6.6. Review action/open items and additions. (Chairperson).

7.2.6.7. At the conclusion of the SRB, the SRB voting members will sign the *OO-ALC Form 518* unless action items applicable to a voting members functional discipline were generated during the course of the SRB.

8. POST SAFETY REVIEW COORDINATION:

8.1. Build Project Folder. After the safety review, the SRB chairperson will coordinate the final minutes of the Safety Review with the TM, who will include it in Section V of the final *OO-ALC Form 518*. The format is described in Attachment 2. The TM will then prepare a complete test documentation package for the coordination process. This documentation package must be arranged in a five-part folder, as described below:

Document	Location
Project title	Outside Front Cover
OO-ALC Forms 518/519	Inside Front Cover
Leave blank	Tab 1
Test plan or directive	Tab 2
TRB minutes or waiver letters	Tab 3
Supporting documentation (TPI and RTO approval letter)	Tab 4

8.2. SRB Member Coordination Cycle. After completing the documentation package, the TM will obtain the remaining SRB voting member signatures. When obtaining 388FW signatures, 388FW/SEY will generate and include in the test safety review package a 388FW signature page for routing purposes within the 388FW.

8.3. Approval Coordination Cycle. The test and safety plans must receive final approval after they have been signed by the TESTREP and TRB/SRB chairpersons. The SM is the final approval authority for all test plans. If the SM and TA have already signed the test plan prior to coordination of the

test project safety review, then additional SM and TA signatures are not required on the *OO-ALC Form 518*. The OO-ALC Squadron Commander acting as RTO/PTO is the final approval authority for low risk test project safety reviews. The Wing Commander or Director in the RTO/PTOs chain-of-command is the approval authority for medium risk test project safety reviews. The OO-ALC/CC is the approval authority for all high risk test project safety reviews. Approval authorities may designate alternates. The coordination cycle and required action for all initial test project safety review packages will be as follows:

	Low Risk	Medium Risk	High Risk
OO-ALC Test Representative	Coord	Coord	Coord
OO-ALC Center Test Authority	Coord	Coord	Coord
Safety Officer	Coord	Coord	Coord
Director Of Safety	Coord	Coord	Coord
Test Adjunct	Coord	Coord	Coord
Single Manager	Coord	Coord	Coord
Participating Test Organization	Coord	Coord	Coord
Squadron Commander	Approve	Coord	Coord
Group Commander	Info	Coord	Coord
Wing Commander	Info	Approve	Coord
OO-ALC Commander	N/A	Info	Approve

8.4. Comments and Non-concurrence. Comments during the coordination cycle are encouraged as they will ultimately enhance safety planning. Resolution of safety issues at the lowest level is desired.

8.4.1. Safety review documentation (Section V) may be commented upon (in the coordination comments paragraph) but will not be altered without reconvening the SRB. The coordination comments paragraph in Section V of *OO-ALC Form 518* is reserved for these comments. Before adding a comment, notify the TM so the issue may be resolved, if possible. The command authority preceding the approval authority will ensure all comments/issues are resolved, if possible, before forwarding the package to the approval authority.

8.4.2. Coordinating officials who do not concur with the safety review recommendations will notify OO-ALC/SE. If the non-concurrence cannot be resolved between the non-concurring official, OO-ALC/SE, and the TM, the reasons for non-concurrence will be documented and signed in Section V. For resolution of the issue, the non-concurring official will present the rationale for non-concurrence at the approval authority's briefing. The TM will notify the non-concurring official of the time, date, and place for the approval authority briefing.

8.4.3. Coordinating officials may coordinate additional restrictions on the test in the coordination comments paragraph of Section V without reconvening the SRB, but must notify OO-ALC/SE and the TM of the addition.

8.5. Approval Authority Briefing. The approval authority may request a project briefing prior to approval. The approval authority's command section will coordinate with OO-ALC/SE to schedule the time and place for briefing the project to the approval authority.

8.5.1. OO-ALC/SE will notify the command authorities below the approval authority as well as the SRB chairman (if alternate was utilized) and the TM, of the confirmed briefing time, date, and place. The TM must ensure that the applicable project personnel (government and contractor) are present at the briefing to answer questions. As a minimum the TM and TA will attend.

8.5.2. At the briefing, the safety review chairperson will introduce the subject of the review. The TM will brief the technical portion of the test. The SRB chairperson will then brief the minutes of the safety review, individual THAs, the recommended risk assessment, and any coordination comments that have been added.

8.5.3. The TM will provide the necessary administrative support for the slide presentation. Additionally the TM will document any necessary changes to the *OO-ALC Form 518* that results from the presentation to the approval authority.

8.5.4. Signature of the approval authority on the *OO-ALC Form 518* constitutes clearance to begin testing.

8.5.5. After the briefing, the SRB chairperson and TM will make a copy of the signed *OO-ALC Form 518* and all changes so they have a current copy to begin testing. The approved package will continue up the information cycle. If an info official has a comment, they must immediately notify the approval authority to try and resolve the issue. If the issue cannot be resolved, the TM must be notified to cease testing related to the issue until the issue can be resolved and documented. The issue and resolution will be documented on a Memo for Record and included in the package after the coordination comment section of the *OO-ALC Form 518*.

8.5.6. After completing the entire coordination, approval, and information cycle, the package will be returned to OO-ALC/TIEH, who will make a copy and return the original to the TM.

9. TEST CONDUCT:

9.1. TRR. The TRB will determine if a TRR is required. If a TRR is required, it will be co-chaired by the CTA and the SM approximately one to seven days before active testing begins. Attendance will include as a minimum the TM, the test director, and the test item operator (flight crew for flight test). The test director and the test item operator may attend by conference call if off-site scheduling considerations warrant. The TRR will assess all required and accomplished preparations versus planned test activity.

9.2. Test Card Approval. The RTO is responsible for executing the test according to the test plan. All ground and flight test events (test cards and local operating instructions) will be coordinated with OO-ALC/SE and approved by the respective Squadron Commander

9.3. Test Execution. The procedures and restrictions documented on *OO-ALC Forms 518* and *519* will be observed while conducting the test. *OO-ALC Form 518* requirements take precedence over those specified in the test plan. The TM will ensure:

9.3.1. During test card preparation, the mission planner reviews the general minimizing considerations and THAs to ensure the test cards comply with any safety limits or procedural constraints.

9.3.2. *OO-ALC Forms 518* and *519* procedures and restrictions are addressed during mission briefing.

9.4. Unexpected Events. Unexpected events may include but are not limited to:

•Damage to the test article or support equipment.

•Exceeding safety-of-test limits.

•An unfavorable departure from predicted simulation/analysis.

•An occurrence judged by any team member to warrant a safety-related pause in the test project.

If an unexpected event occurs during the test, the test project will be halted and OO-ALC/SE will be notified to see if a safety change amendment is required. A safety change amendment will be completed according to Chapter 10 of this instruction.

9.5. Delays. If the start of testing is delayed more than 45 days after final approval, OO-ALC/SE will determine if a requirement exists to perform a further safety review and if an amendment is required.

10. PROJECT CHANGES:

10.1. Changes. Unexpected results, overly-restrictive controls, hazards not previously identified nor adequately controlled, or changes to the test which occur after the initial (original) safety review may considerations with a potential increase in risk level, the require additional test and safety planning. Since the TM is responsible for safe conduct of the test, the TM is responsible for ensuring that test and safety planning is carried out under the provisions of this instruction.

10.1.1. Revisions to the approved test plan which do not exceed the scope of the original are approved by the TRB chairperson. Other revisions will be approved by the test plan approving authority and may require an additional TRB.

10.1.2. Follow-on safety planning normally will require documentation on an *OO-ALC Form 518*. If in doubt, consult with OO-ALC/SE to determine the appropriate course of action and documentation. Depending on the scope of the change, OO-ALC/SE may determine that there are no safety planning changes or there are minor safety planning changes. Changes that affect the results of the original safety review will be documented on an amendment. Signature of one or more of the safety review members may be required. This requirement will be determined by OO-ALC/SE. If it is impractical to obtain the original board members' signatures, OO-ALC/SE may approve the use of substitutes. If there are changes that significantly affect the safety SRB may reconvene.

10.2. Amendment Preparation. Document all changes on an *OO-ALC Form 518*. Amendment preparation instructions are provided in Attachment 2. The amendment should be forwarded in a five-part folder, as described below:

Document	Location
Project title	Outside Front Cover
OO-ALC Form 518 Amendment	Inside Front Cover
Original *OO-ALC Form 518*	Tab 1
Test plan or directive	Tab 2
TRB minutes or waiver letters	Tab 3
Supporting Documentation (TPI and RTO approval letter)	Tab 4

10.3. Coordination/Approval. Coordination/Approval levels for amendments are as follows:

	Low Risk	Medium Risk	High Risk
OO-ALC Test Representative	Coord	Coord	Coord
OO-ALC Center Test Authority	Coord	Coord	Coord
Safety Officer	Coord	Coord	Coord
Director Of Safety	Coord	Coord	Coord
Test Adjunct	Coord	Coord	Coord
Single Manager	Coord	Coord	Coord
Participating Test Organization	Coord	Coord	Coord
Squadron Commander	Approve	Coord	Coord
Group Commander	Info	Coord	Coord
Wing Commander	Info	Approve	Coord
OO-ALC Commander	N/A	Info	Approve

10.3.1. Coordination officials will notify the TM before making comments on the amendment to try and resolve the issue. If the issue cannot be resolved, the comment will be added.

10.3.2. The approval authority will resolve all issues before approving the amendment. Testing may continue once the package is signed by the approval authority and the TM has copies in hand of the entire approval package.

10.3.3. The approval package will continue up the information cycle. If an information official has a comment, they must immediately notify the approving official to try and resolve the issue. If the issue cannot be resolved, the TM must be notified to halt testing covered by the subject amendment. The changes will be documented in the package behind the amendment. The TM must make a copy of the Memo for Record and incorporate it in their copy of the package. The TM can then continue testing.

10.3.4. After completing the cycle, the entire package will be returned to OO-ALC/TIEH, who will then make copies and return the original to the TM.

10.4. Length and Change Limits. If the project continues for more than five years, or accumulates more than 20 amendments, another SRB will be accomplished. For those projects that have lasted more than five years, this review will ensure that the project benefits from current safety policies and guidelines. For those projects with more than 20 amendments, the safety review will ensure that an organized safety package is generated which incorporates all the previous lessons learned and eliminates possible confusion surrounding old (and possibly conflicting) amendments. Under special circumstances, the requirement to perform another safety review may be waived by OO-ALC/SE. Additionally, OO-ALC/SE may require, or the TM may request, a new safety review for projects with less than 20 amendments to clarify packages with confusing/conflicting amendments.

11. PROJECT COMPLETION:

11.1. Complete Closeout Amendment. At the completion of testing that is covered by a specific test plan, the TM will document safety lessons learned on an amendment according to Attachment 2.

11.2. Coordinate Closeout Lessons Learned. The TM will forward this closeout amendment to OO-ALC/SE and OO-ALC/TIEH. OO-ALC/TIEH will in turn forward lessons learned to HQ AFMC/DRI.

11.3. Test Reporting. The RTO is responsible for reporting the results of the test to the SM. The report can vary in scope from simply providing raw data to a comprehensive Technical Report that includes thorough analysis, conclusions, and recommendations. Test report requirements should be specified in the test plan. The CTA or TESTREP will review draft reports if requested by the SM organization.

12. SPECIAL CONSIDERATIONS:

12.1. Tenants. Tenants with an inter-service support or OO-ALC Host-Tenant agreement will review test plans within their area of responsibility and notify OO-ALC/SE (before the start of testing) of any potentially high risk test activity or any test activity which will affect normal OO-ALC operations. OO-ALC/SE will advise the organization of any requirement to submit a flight crew information file item.

12.2. Tests which involve OO-ALC resources (other than normal airfield support) will be safety reviewed by the OO-ALC. OO-ALC/SE will determine if the activity's internal safety review process meets or is substantially similar to OO-ALC requirements. If so, OO-ALC/SE will participate if possible and forward the results up the chain of command.

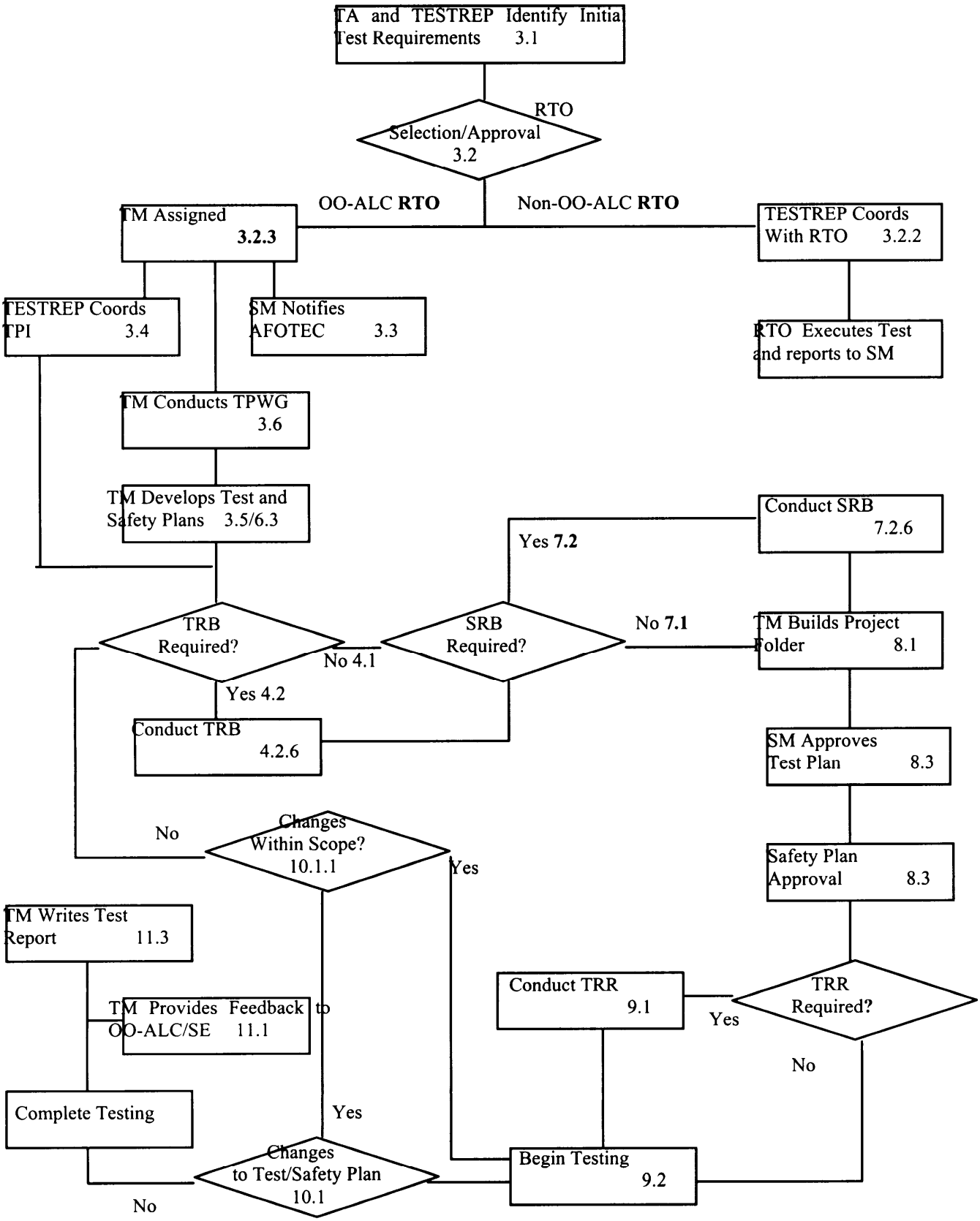
12.3. Combined TRB/SRB. A technical review will always precede a safety review. In many cases, the personnel required for both a TRB and SRB are the same. If it is deemed prudent, the TRB and SRB may be run consecutively. In this case, the first meeting will be the TRB, with the TRB chairperson presiding over the meeting, and primarily technical issues will be discussed. If there are no major technical issues to be resolved after the TRB, an SRB will convene with the SRB chairperson presiding. If the TRB raises major technical concerns, then the SRB will be postponed until the technical concerns are adequately addressed.

13. FORMS PRESCRIBED. This publication prescribes *OO-ALC Form 518, Test Project Safety Review,* and *OO-ALC Form 519, Test Hazard Analysis (THA).*

SCOTT C. BERGREN, Maj Gen, USAF
Commander, Ogden Air Logistics Center

Attachment 1

FLOW CHART



Numbers in flow chart refer to paragraph numbers in publication

Attachment 2
INSTRUCTIONS FOR COMPLETING OO-ALC FORMS 518 AND 519

A2.1. *OO-ALC FORM 518:* TEST PROJECT SAFETY REVIEW (INITIAL)

A2.1.1. USE: The *OO-ALC Form 518* introduces and summarizes the test, documents the research of lessons learned, records the proceedings of the SRB, and provides a vehicle by which the OO-ALC command structure gives final approval for the conduct of the test.

A2.1.2. PREPARATION: The TM fills out the sections of the *OO-ALC Form 518* except Blocks 2 and 3. The SRB chairperson fills in these blocks during the coordination cycle.

A2.1.3. EXAMPLE: See this attachment for an example that documents a test project.

A2.2. *OO-ALC FORM 518:* TEST PROJECT SAFETY REVIEW (AMENDMENT)

A2.2.1. USE: The *OO-ALC Form 518* is used to:

A2.2.1.1. Document any changes to the test or test item and/or changes to the safety planning and request their approval before continued testing.

A2.2.1.2. Notify OO-ALC of the completion of the test. This notification also notes any lessons learned that apply to the system safety process. If there are no lessons learned, this amendment will not be coordinated for management approval, but will be sent to OO-ALC/SE and OO-ALC/TIEH for inclusion in their records.

A2.2.2. PREPARATION: The TM fills out all sections of the *OO-ALC Form 518.* Ensure changes from the original *OO-ALC Form 518* are addressed.

A2.3. *OO-ALC FORM 519*: TEST HAZARD ANALYSIS

A2.3.1. USE: The *OO-ALC Form 519*, documents each test unique hazard and the actions the project will take to control each hazard to an acceptable level of risk.

A2.3.2. PREPARATION: The TM fills out all sections of the *OO-ALC Form 519.* If the hazard is not unique to your series of tests, no THA is required. For example, mid-air collision with non-participating aircraft is not generally considered test unique hazard. However, should the very nature of the test increase the probability of this hazard above that of normal operations, it should be addressed as a test unique hazard. A hazard category and probability will be determined and documented for the initial hazard and after the minimizing procedures have been applied. In addition, the risk level shown in the form correlates to the final risk level once the minimizing procedures have been applied.

A2.3.3. EXAMPLE: See this attachment.

TEST PROJECT SAFETY REVIEW (INITIAL AND AMENDMENT)

(Refer to OO-ALC-HAFBI 99-101 for complete instructions)

I. PROJECT INFORMATION

1. INITIAL PROJECT TEST TITLE	2. INITIAL RISK LEVEL	3. CONTROL NUMBER	4. TEST AGENCY
Have Any Problem	Med	OO-ALC 99-XX	649MUNS/ZZZ

5. SUBJECT OF AMENDMENT	6. AMENDMENT RISK LEVEL	7. CHANGE NUMBER

8. TEST MANAGER *(Typed Name and Grade)*	9. SIGNATURE	10. TELEPHONE NUMBER	11. DATE
John Aaaa, GS-12		7-XXXX	
12. TEST SAFETY OFFICER *(Typed Name and Grade)*	**13. SIGNATURE**	**14. TELEPHONE NUMBER**	**15. DATE**
Jane Bbbb, Capt.		5-XXXX	

II. SAFETY REVIEW MEMBERS

NAME, GRADE, AND TITLE	SIGNATURE AND DATE	NAME, GRADE, AND TITLE	SIGNATURE AND DATE
Joe Cccc, GS-13 SRB Chairman			
Jack Dddd, Maj. Operations Rep.			
Jill Eeee, GS-13 Engineering Rep.			

III. COORDINATION AND APPROVAL

POSITION TITLE	SIGNATURE	DATE	ACTION *(Coordination, approve, Information, or N/A)*	COMMENTS ADDED	
				YES	NO
OO-ALC TEST REPRESENTATIVE Jeff Ffff, GS-13			COORD		
OO-ALC CENTER TEST AUTHORITY July Gggg, LtCol			COORD		
SAFETY OFFICER Jim Hhhh, GS-13			COORD		
DIRECTOR OF SAFETY OO-ALC/SE			COORD		
TEST ADJUNCT OO-ALC/LXX			COORD		
SINGLE MANAGER OO-ALC/LX			COORD		
PARTICIPATING TEST ORGANIZATION 100FW/CC			COORD		
SQUADRON COMMANDER OR EQUIVALENT 649MUNS/CC			COORD		
GROUP COMMANDER OR EQUIVALENT 75ABW/LG			COORD		
WING COMMANDER OR EQUIVALENT 75ABW/CC			APPROVE		
OO-ALC COMMANDER OR AS DELEGATED OO-ALC/CC			INFO		

RETURN TO OO-ALC/TIEH

IV. PROJECT DESCRIPTION

INSTRUCTIONS: Include the following sections: Background, Test Objectives, Test Item Description, System Maturity, Types of Tests, Differences From Previous Tests, and Scope. An amendment will incorporate changes inherent within these sections. Use additional sheets if necessary.

SECTION IV. TEST PROJECT DESCRIPTION (Briefly describe the following items).

1. BACKGROUND: Briefly explain what led to the test, reasons for testing, and OO-ALC involvement.

2. TEST OBJECTIVES: Include the general objectives of the test. Specific objectives may be included if they are not too lengthy, but are not required.

3. TEST ITEM DESCRIPTION: Describe the test item. Do not describe the platform the item will be carried on unless a unique configuration.

4. SYSTEM MATURITY: Describe the maturity of the test item. Is the test item a modified version of an existing component? Are changes evolutionary or revolutionary? In addition summarize anticipated results from simulation analysis and ground test.

5. TYPES OF TEST: Summarizes test methodology (maneuvers/test techniques).

6. DIFFERENCES FROM PREVIOUS TESTS: Describe differences from tests of similar events. State if none.

7. SCOPE: Summarizes schedule, number of sorties, test duration, and test locations.

IV. PROJECT DESCRIPTION - CONTINUATION

INSTRUCTIONS: Include the following sections: Background, Test Objectives, Test Item Description, System Maturity, Types of Tests, Differences From Previous Tests, and Scope. An amendment will incorporate changes inherent within these sections. Use additional sheets if necessary.

Continuation of Page 2.

V. SAFETY REVIEW SUMMARY

INSTRUCTIONS: Include the following sections: Review Synopsis, References, Mishap responsibilities, General Minimizing Considerations, Test Article Restrictions, Special Considerations, Action Items, Risk Assessment, and Coordination Comments. An amendment will incorporate changes inherent within these sections. Use additional sheets if necessary

SECTION V: SAFETY REVIEW SUMMARY (Briefly describe the following)

1. REVIEW SYNOPSIS: Provide a summary of the review (state when the TRB and SRB were held) conducted in support of the test project.

2. REFERENCES: List technical orders, previous test reports, operating instructions, or lessons learned used.

3. MISHAP RESPONSIBILITIES: State which Major Command has mishap accountability and the unit that has mishap reporting responsibilities.

4. GENERAL MINIMIZING CONSIDERATIONS: List general precautions taken to minimize hazards during the test.

5. TEST ARTICLE RESTRICTIONS: List any unique procedures or restrictions that must be used with the test item.

6. SPECIAL CONSIDERATIONS: List any special information that is needed by personnel executing the test.

7. ACTION ITEMS: List action items generated from the SRB.

8. RISK ASSESSMENT: List the risk assessment (Low, Medium, or High) and the rationale used to assign it.

9. COORDINATION COMMENTS: Comments from coordinating/approving officials.

V. SAFETY REVIEW SUMMARY - CONTINUATION

INSTRUCTIONS: Include the following sections: Review Synopsis, References, Mishap responsibilities, General Minimizing Considerations, Test Article Restrictions, Special Considerations, Action Items, Risk Assessment, and Coordination Comments. An amendment will incorporate changes inherent within these sections. Use additional sheets if necessary

Continuation of Page 4.

TEST HAZARD ANALYSIS (THA)		PAGE 1 OF PAGES
1. PROJECT TEST TITLE Enter Test Project Title		
2. INITIAL HAZARD CATEGORY/PROBABILITY	3. FINAL HAZARD CATEGORY PROBABILITY	4. FINAL RISK LEVEL
4. PREPARED BY *(Type Name and Grade)*	5. SIGNATURE	
6. UNIT TEST SAFETY OFFICER *(Type Name and Grade)*	7. SIGNATURE	

HAZARD: This is the condition or situation that has the potential to result in a mishap or accident. It is that condition or situation that precedes or accompanies the unplanned, uncontrolled release, transfer, or dissipation of energy (e.g., kinetic, potential, chemical, laser, nuclear, electrical, etc.). The statement describes the condition or situation not the mishap itself.

CAUSE: A cause is the circumstance or action that leads to the hazard's occurrence. It may be a failure mode, operator error, or out-of-limit condition. A hazard may have multiple causes and each must be identified.

EFFECT: This is the mishap or accident to be avoided. It identifies who or what resources will be injured, damaged or destroyed if the hazard occurs. The only choices for effect are:

EFFECT	CATEGORY
Death Loss of System Severe Environmental Damage	I, Catastrophic
Severe Injury Severe Occupational Illness Major System/Environmental Damage	II, Critical
Minor Injury Minor Occupational Illness Minor System/Environmental Damage	III, Marginal

If the hazard you identified could not ultimately cause one of the above effects, then it is not a hazard in the context of the OO-ALC test safety review process. The category number goes in the block at the top of the OO-ALC Form 519.

MINIMIZING PROCEDURES: This is the section where you describe your plan for preventing the hazard or reducing the probability of occurrence of the hazard. In general, these are the limitations you are placing on your project. If it is not an action or procedure followed during preparation or conduct of the test, then it is most probably belongs in the remarks section. Each minimizing procedure should reference the specific cause you are trying to control.

CORRECTIVE ACTIONS: This is the list of what you will do to prevent a mishap (the effect) if the hazard occurs. This covers the control room, ground personnel, flight crew, and anyone else the situation calls for.

REMARKS: Additional considerations may be recorded here.

Attachment 3
OO-ALC RISK ASSESSMENT METHOD

	HAZARD SEVERITY CATEGORY			
	CATASTROPHIC	CRITICAL	MARGINAL	NEGLIGIBLE
HAZARD PROBABILITY	Death or system/ facility loss	Severe injury, occupational illness, or major system/ facility damage	Minor injury, minor occupational illness, or minor system/ facility damage	Less than minor injury occupational illness or system /facility damage
FREQUENT *Likely to occur frequently **Continuously experienced	1	3	7	13
PROBABLE *Will occur several times **Will occur frequently	2	5	9	16
OCCASIONAL *Likely to occur sometime **Will occur several times	4	6	11	18
REMOTE *Unlikely, but possible to occur **Unlikely, but can be reasonably expected to occur	8	10	14	19
IMPROBABLE *So unlikely, assume it may not occur **Unlikely to occur but possible	12	15	17	20

*Specific individual item
**Fleet or inventory

A3.1. HAZARD PROBABILITY. This is a subjective evaluation of the probability of the effect occurring by the board members based on their experience. If quantitative probabilities are available from the contractors/Program Office Hazard Analyses, the board must consider these.

A3.2. HAZARD SEVERITY CATEGORY. A qualitative measure of hazard's effect.

•Category I - Catastrophic. May cause death, system loss, or severe environmental damage.

•Category II - Critical. May cause severe injury, severe occupational illness, or major system/environmental damage.

•Category III - Marginal. May cause minor injury, occupational illness, or minor system/environmental damage.

•Category IV - Negligible. May cause less than minor injury, occupational illness, or system/environmental damage.

A3.3. RISK. An expression of possible loss in terms of hazard severity (effect) and hazard probability (probability of hazard causing the effect).

A3.4. RISK LEVEL. The degree of risk assumed by OO-ALC management is allowing the proposed test to be accomplished in the manner and under the conditions specified. The risk level is determined by entering the risk assessment chart above with both the hazard category and probability and seeking what risk category it falls into. OO-ALC risk levels are defined according to Mil-Std 882, System Safety Program Requirements, assessment methods.

•LOW RISK. Tests which present no greater risk than normal operations. Routine supervision is appropriate. (numbers 12 through 20)

•MEDIUM RISK. Tests which present a greater risk to personnel, equipment, or property than normal operations and require more than routine supervision. (numbers 5 through 11)

•HIGH RISK. Tests which present a significant risk to personnel, equipment, or property, even after all precautions measures have been taken. (numbers 1 through 4)

Attachment 4
GLOSSARY OF REFERENCES, ACRONYMS, AND TERMS

References – Publications and Forms

AFI 99-101, Developmental Test and Evaluation.
AFPD 99-1, Test and Evaluation Process.
AFMC Sup 1 to AFI 91-202, The USAF Mishap Prevention Program.
AFMCPAM 91-1, Flight Safety and Technical Considerations Guide for Flight Testing.
AFMCPD 99-1, Test and Evaluation Risk Management.
AFMCPD 99-2, Test Representatives (TESTREP).
AFFTC-TIH-93-01, Air Force Flight Test Center Test Plan Preparation Guide.
AF Form 813, Request for Environmental Impact Analysis.
HAFBI 10-401, Support of Units Deployed to Hill AFB
Mil-Std 882, System Safety Program Requirements.
OO-ALC Form 518, Test Project Safety Review.
OO-ALC Form 519, Test Hazard Analysis (THA).

Acronyms

75 AMDS/SGPB – Bioenvironmental Engineering Flight
75 CEG/CED – Explosive Ordnance Disposal Division
75 CEG/CEF – Fire Protection Division
75 OSS/OSAM – Airfield Management
388 FW – 388th Fighter Wing
388 RANS – 388th Range Squadron
412 TW – 412th Test Wing
514 FLTS – 514th Flight Test Squadron
649 MUNS – 649th Munitions Squadron
AAC – Air Armament Center
AFFTC - Air Force Flight Test Center
AFMC - Air Force Materiel Command
AFOTEC - Air Force Operational Test and Evaluation Center
CTA - Center Test Authority
DT&E - Developmental Test and Evaluation
IWSM - Integrated Weapon System Management
MRTFB – Major Range and Test Facility Base
OO-ALC - Ogden Air Logistics Center
OO-ALC/CC – OO-ALC Commander
OO-ALC/EMP – Planning Division
OO-ALC/SE – Safety Directorate
OO-ALC/SEF – Flight Safety Division
OO-ALC/SEG – Ground Safety Division
OO-ALC/SES – Systems Safety Division
OO-ALC/SEW – Weapons Safety Division
PTO – Participating Test Organization
OT&E - Operational Test and Evaluation
QT&E - Qualification Test and Evaluation
RTO - Responsible Test Organization
SFTC - Single Face to the Customer Office
SM - Single Manager

SRB - Safety Review Board
ST&E - Sustainment Test and Evaluation
T&E - Test and Evaluation
TA - Test Adjunct
TESTREP - Test Representative
THA - Test Hazard Analysis
TM - Test Manager
TPI - Test Project Introduction
TPWG – Test Plan Working Group
TRB - Technical Review Board
TRR - Test Readiness Review
UTTR - Utah Test and Training Range

Terms

Center Test Authority (CTA) - The single focal point for test and evaluation for the Logistics Center.

Industrial and Maintenance Inspections (IMI) - IMIs are sustainment related inspections and quality checks performed to verify completeness and accuracy of established repair or production processes, including acceptance testing and failure investigations which are not necessarily associated with production or repair. An aircraft functional check flight following depot maintenance is an IMI example.

Responsible Test Organization (RTO) - The lead organization responsible for DT&E, QT&E, or ST&E.

Single Manager (SM) – A government official (military or civilian) who is responsible and accountable for decisions and overall management (to include all cost, schedule, performance, and sustainment) of a system, product group, or materiel group. Also known as system program director, program manager, product group manager, or materiel group manager.

Test and Evaluation (T&E) - T&E is made up of Developmental T&E (DT&E), Qualification T&E (QT&E), Sustainment T&E (ST&E), and Operational T&E (OT&E). OO-ALC is involved in conducting DT&E, QT&E, ST&E, and supports OT&E.

> Developmental Test and Evaluation (DT&E) as defined in *AFPD 99-1*: "...including contractor testing, is conducted to evaluate design approaches, validate analytical models, quantify contract technical performance and manufacturing quality, measure progress in system engineering design and development, minimize design risks, and predict integrated system operational performance (effectiveness and suitability) in the intended environment and identify system problems (or deficiencies) to allow for early and timely resolution or correction."
>
> Operational Test and Evaluation (OT&E) as defined in *AFPD 99-1*: "...is conducted under conditions that are operationally realistic as possible and practical, using production or production representative test articles to determine if the system, as developed, will meet the user's defined operational requirements."
>
> Qualification Test and Evaluation (QT&E) as defined in *AFPD 99-1*: "...is conducted in lieu of developmental test and evaluation, which may involve contractor and government testing, on projects where there has not been a preceding research and development effort and on certain modifications to existing systems."
>
> Sustainment Test and Evaluation (ST&E) is conducted by the government or a contractor to ensure fielded systems continue to perform as required; identify shortcomings or deficiencies; identify quality, reliability, maintainability, and safety problems; and provide aging and surveillance testing. These investigations may lead to future modification/upgrade projects.

Test Adjunct (TA) - The T&E focal point within the SM's organization.

Test Hazard Analysis (THA) - A document that identifies test hazards, causes, effects, and establishes hazard controls. It is used to determine risk level.

Test Manager (TM) - The individual within the RTO with overall responsibility for the test.

Test Project Introduction (TPI) - A form used by the TESTREP to summarize a new test project and indicate initial technical and safety risk. This TPI is sent to the applicable AF Test Center for technical and safety review.

Test Representative (TESTREP) - "Test expert" who works with a Logistics Center Test Authority, providing the critical link between the AF Test Centers and the CTA for test issues. The OO-ALC TESTREP works within the CTA but is assigned to one of the AF Test Centers.

Test Unique Hazard - A hazard that is the result of the specific test being accomplished and not present in the normal operational hazards associated with the initial testing of any new system.